Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A micromachined gyroscope adapted to operate[[d]] in a nonresonant mode, comprising:

~~three interconnected masses;~~

a drive-mode oscillator; and

a sense-mode oscillator,

wherein the drive-mode oscillator comprises a first combination of at least two masses out of three interconnected masses, and the sense-mode oscillator comprises a second combination of at least two masses out of the three interconnected masses, and

wherein the drive-mode oscillator and the sense-mode oscillator are ~~dynamically~~ mechanically decoupled ~~and employ the three interconnected masses~~.

2. (Currently amended) The micromachined gyroscope of claim 1, wherein the drive-mode oscillator and sense-mode oscillator by means of their chosen design parameters dynamically amplify a movement ~~in a drive direction and in a sense direction~~ of at least one of the three interconnected masses to achieve ~~large~~ amplified oscillation amplitudes without resonance whereby increased bandwidth and reduced sensitivity to structural and thermal parameter fluctuations and damping changes results.

3. (Currently amended) The micromachined gyroscope of claim 1,

wherein the drive-mode oscillator comprises ~~drives~~ the three interconnected masses and oscillates in a drive direction, wherein the sense-mode oscillator comprises ~~senses movement of~~ two of the three interconnected masses that oscillate in a sense direction,

wherein at least one of the three masses is included in an intermediate mass and another one of the three masses is a sensing element, wherein the intermediate mass is larger than the sensing element, and

wherein the drive-mode oscillator and sense-mode oscillator are ~~dynamically~~ mechanically decoupled in the drive direction from the sense direction, so that a Coriolis force generated by means of the larger intermediate mass results in a corresponding larger Coriolis force being transferred to the sensing element for increased sensitivity.

4. (Currently amended) The micromachined gyroscope of claim 1,

wherein the drive-mode oscillator and sense-mode oscillator include a drive means for driving a mass in a drive direction and a sense means for sensing motion of a mass in a sense direction, and

wherein the three interconnected masses comprise a first mass, a second mass and a third mass, the first mass being the only mass directly excited by the drive means, the first mass oscillating in the drive direction and the first mass being constrained from movement in the sense direction, the second and third masses being constrained from movement with respect to each other in the drive direction and oscillating together in the drive direction but oscillating independently from each other in the sense direction, the

third mass being fixed with respect to the second mass in the drive direction, but free to oscillate in the sense direction, the drive-mode oscillator comprising the ~~first, the second and third~~ three interconnected masses ~~which~~ that collectively act as a passive mass, the second and third masses comprising the sense-mode oscillator.

5. (Currently amended) The micromachined gyroscope of claim 4,

wherein the second mass oscillates in the drive and sense directions to generate a rotation-induced force that excites the sense-mode oscillator, and

wherein a sense direction response of the third mass, which ~~comprises~~ acts as a vibration absorber of the sense-mode oscillator, is detected for measuring an input angular rate.

6. (Currently amended) The micromachined gyroscope of claim 1, further comprising a substrate, ~~and~~

wherein the three interconnected masses comprise a first mass, a second mass and a third mass, wherein the first mass is anchored to the substrate by a first flexure ~~which~~ that allows movement substantially only in the drive direction, wherein the second mass is coupled to the first mass by a second flexure that allows movement in the drive and the sense directions, and wherein the third mass is coupled to the second mass by a third flexure ~~which~~ that allows movement relative to the second mass substantially only in the sense direction, and

wherein the drive-mode oscillator and the sense-mode oscillator comprise a drive means for driving the first mass, the second mass and the third mass in a drive

direction, a sense means for sensing motion of the third mass in a sense direction, and [[a]] the substrate on which the drive-mode oscillator and sense-mode oscillator are disposed.

7. (Currently amended) The micromachined gyroscope of claim 6, wherein the first[[,]] and third flexures are folded micromachined springs having a resiliency substantially in only a first direction and wherein the second flexure is comprised of two coupled folded micromachined springs, one of the two coupled folded micromachined springs having a resiliency substantially in only one of the first ~~or~~ and a second direction orthogonal to the first direction and the other one of the two coupled folded micromachined springs having a resiliency substantially in only the other one of the first ~~or~~ and second directions.

8. (Currently amended) The micromachined gyroscope of claim 1, wherein the drive-mode oscillator and the sense-mode oscillator are arranged and configured such that ~~to~~ each ~~have~~ having a frequency response with two resonant peaks and a flat region between the peaks, the gyroscope being operated at a frequency in the flat regions of the frequency responses of the drive and the sense-mode oscillators.

9. (Currently amended) The micromachined gyroscope of claim 8,

wherein the drive-mode oscillator has a drive direction anti-resonance frequency, wherein the sense-mode oscillator has a sense direction anti-resonance frequency, and

wherein the drive-mode oscillator and the sense mode oscillator are arranged and configured to have matching ~~drive and sense direction~~ anti-resonance frequencies.

10. (Currently amended) The micromachined gyroscope of claim 1,

wherein the three interconnected masses comprise a first mass, a second mass, ~~and~~ a third mass, and coupled flexures,

wherein the first mass oscillates, the second and the third masses combining to comprise a vibration absorber of the drive-mode oscillator, which vibration absorber mechanically absorbs and amplifies the oscillations of the first mass, and

wherein the drive-mode oscillator and the sense-mode oscillator comprise a drive means for driving the first mass, the second mass and the third mass in a drive direction, and a sense means for sensing motion of the third mass in a sense direction.

11. (Currently amended) The micromachined gyroscope of claim 10, wherein the first mass is driven at a driving frequency, ω_{drive}, by means of an input force F_d, which driving frequency, ω_{drive}, is matched with a resonant frequency of an isolated passive mass-spring system comprised of the second and third masses and coupled flexures, which passive mass-spring system is in resonance with the first mass, so that maximum dynamic amplification of a motion of at least one of the three interconnected masses is achieved.

12. (Currently amended) The micromachined gyroscope of claim 1,

wherein the three interconnected masses comprise a first mass, a second mass, ~~and~~ a third mass, and coupled flexures,

wherein the third mass absorbs vibrations [[of]] such that the sense-mode oscillator [[to]] achieves ~~large~~ amplified sense direction oscillation amplitudes due to mechanical amplification, and

wherein the drive-mode oscillator and the sense-mode oscillator comprise a drive means for driving the first mass, the second mass and the third mass in a drive direction, and a sense means for sensing motion of the third mass in a sense direction.

13. (Currently amended) The micromachined gyroscope of claim 12,

wherein the third mass comprises an isolated passive mass-spring system, and wherein a sinusoidal Coriolis force is ~~applied to~~ induced on the second mass, and

wherein the frequency of the sinusoidal Coriolis force is matched with a resonant frequency of the isolated passive mass-spring system of the third mass and its coupled flexures, so that the third mass achieves maximum dynamic amplification in its motion.

14. (Currently amended) The micromachined gyroscope of claim 1,

wherein the drive-mode oscillator comprises a drive means for driving the three interconnected masses in a drive direction, and the sense-mode oscillator comprises a sense means for sensing motion of ~~at least~~ one of the three interconnected masses in a sense direction,

wherein the three interconnected masses comprise a first mass, a second mass, a ~~and~~ third mass, and flexures coupled to each of the first, second and third masses,

wherein the drive-mode oscillator and the sense-mode oscillator each have a frequency response defined by a response curve,

wherein each of the frequency responses of both the drive-mode oscillator and sense-mode oscillator ~~have~~ has two resonant peaks and a flat region of the response curve between the peaks,

wherein both of the drive-mode oscillator and the sense-mode oscillator are operated in the flat region of their respective response curves,

wherein the second mass has a drive anti-resonance frequency, ω_{2x}, and the third mass has a sense anti-resonance frequency, ω_{3y}, and

wherein ~~the drive anti-resonance frequency,~~ ω_{2x}~~, of the second mass~~ and ~~sense anti-resonance frequency,~~ ω_{3y}~~, of the third mass~~ are matched, namely where $\omega_{3y} = \omega_{2x}$, or equivalently $(k_{3y}/m_3)^{1/2} = (k_{2x}/(m_2 + m_3))^{1/2}$ determines optimal system parameters, together with the optimized ratios $\mu_x = (m_2 + m_3)/m_1$, $\gamma_x = \omega_{2x}/\omega_{1x}$, $\mu_y = m_3/m_2$, and $\gamma_y = \omega_{3y} / \omega_{2y}$, where k_{3y} is ~~the~~ a spring constant of the flexures coupled to the third mass, where m_3 is ~~the~~ a magnitude of the third mass, k_{2x} is ~~the~~ a spring constant of the flexures coupled to the second mass, m_2 is ~~the~~ a magnitude of the second mass, ~~m_3 is the magnitude of the third mass,~~ ω_{1x} is the drive anti-resonance frequency of the first mass, and ω_{2y} is the sense anti-resonance frequency of the second mass.

15. (Currently amended) A method of nonresonantly operating a micromachined gyroscope, comprising:

driving, in a first motion, a drive-mode oscillator with an applied force ~~to define a first motion of the drive-mode oscillator~~;

driving, in a second motion, a sense-mode oscillator with a Coriolis force derived from the drive-mode oscillator ~~to define a second motion of the sense-mode oscillator~~; and

decoupling the first motion ~~of the drive-mode oscillator~~ from the second motion ~~of the sense-mode oscillator~~,

wherein driving the drive-mode oscillator comprises driving a first combination of at least two masses out of three interconnected masses, and

driving the sense-mode oscillator comprises driving a second combination of at least two masses out of the three interconnected masses.

16. (Currently amended) The method of claim 15, wherein driving the drive-mode oscillator and driving the sense-mode oscillator dynamically ~~amplifies~~ amplify a motion ~~in the drive and sense directions~~ of at least one of the three interconnected masses to achieve ~~large~~ amplified oscillation amplitudes without resonance to result in increased bandwidth and reduced sensitivity to structural and thermal parameter fluctuations and damping changes.

17. (Currently amended) The method of claim 15, wherein ~~mechanically~~ decoupling the ~~drive-mode oscillator~~ first motion and the second motion ~~sense-mode oscillators~~ comprises:

mechanically decoupling the drive-mode oscillator and sense-mode oscillators in the drive direction from the sense direction; and

exciting a sense mass in the sense-mode oscillator by a force ~~which is arises~~ arising from an intermediate mass employed in both the drive-mode and sense mode oscillators,

wherein the intermediate mass is a substantially larger mass than the sense mass, resulting in increased sensitivity of the gyroscope.

18. (Currently amended) The method of claim 15, wherein driving the drive-mode oscillator comprises driving a first, second and third masses in a drive direction, and driving the sense-mode oscillator comprises driving second and third a mass in a sense direction, exciting the first mass only by a drive means, ~~oscillating~~ causing the first mass to oscillate in the drive direction with a driving force and constraining movement of the first mass from the sense direction, constraining movement of the second and third masses with respect to each other from the drive direction, ~~oscillating~~ causing the second and third masses to oscillate together in the drive direction but ~~oscillating~~ causing the second and third masses to oscillate independently from each other in the sense direction, the third mass being fixed with respect to the second mass in the drive direction, ~~oscillating~~ causing the third mass to oscillate in the sense direction.

19. (Currently amended) The method of claim 18, wherein ~~oscillating~~ the oscillation of the second mass in the drive and sense directions ~~generates a rotation-induced force that~~ excites the sense-mode oscillator through a rotation-induced force, ~~and~~ which is used for detecting a sense direction response of the third mass, which ~~comprises~~ acts

as a vibration absorber of the sense-mode oscillator for measuring an input angular rate.

20. (Currently amended) The method of claim 15, wherein the three interconnected masses comprise a first mass, a second mass and a third mass, and wherein the drive-mode oscillator comprises a drive means for driving a mass in a drive direction and the sense-mode oscillator comprises a sense means for sensing motion of the third mass in a sense direction, and a substrate on which the drive-mode oscillator and the sense-mode oscillator are disposed, the method further comprising:

anchoring the first mass to the substrate by a first flexure and moving the first mass substantially only in the drive direction,

moving the second mass coupled to the first mass by means of transferring force through a second flexure in the drive and the sense directions, and

moving the third mass coupled to the second mass by means of transferring force through a third flexure substantially only in the sense direction.

21. (Currently amended) The method of claim 20,

wherein anchoring the first mass comprises coupling the first mass by the first flexure to the substrate by coupling the first mass using a folded micromachined spring having a resiliency substantially in only one direction, and

wherein moving the third mass comprises coupling the third mass to the second mass by coupling the third mass using the second flexure, which is comprised of two coupled folded micromachined springs, one of the two coupled folded micromachined

springs having a resiliency substantially in only one of the first ~~or~~ and a second direction orthogonal to the first direction, and the other one of the two coupled folded micromachined springs having a resiliency substantially in only the other one of the first ~~or~~ and second directions.

22. (Currently amended) The method of claim 15, wherein driving the drive-mode oscillator and driving sense-mode oscillator comprise[[s]] operating the gyroscope in flat regions of response curves of the drive-mode and sense-mode oscillators between two resonant peaks in the response curves.

23. (Currently amended) The method of claim 22, further comprising matching an anti-resonance drive frequency of the drive-mode oscillator with an anti-resonance sense frequency of the sense-mode oscillator.

24. (Currently amended) The method of claim 15, wherein the three interconnected masses comprise a first mass, a second mass, ~~and~~ a third mass, and coupled flexures, the second and the third masses combining to comprise a vibration absorber of the drive-mode oscillator, the method further comprising

mechanically absorbing and amplifying the oscillations of the first mass by means of the vibration absorber, ~~and~~

wherein the drive-mode oscillator and the sense-mode oscillator comprise a drive means for driving the first mass, the second mass, and the third in a drive direction, and a sense means for sensing a motion of the third mass in a sense direction.

25. (Currently amended) The method of claim 24, further comprising driving the first mass at a driving frequency, ω_{drive}, by means of an input force F_d, matching the driving frequency, ω_{drive}, with a resonant frequency of an isolated passive mass-spring system comprised of the second and third masses and coupled flexures, and moving the passive mass-spring system in resonance with the first mass, so that maximum dynamic amplification of at least one of the first motion and the second motion is achieved.

26. (Currently amended) The method of claim 15,

wherein driving the drive-mode oscillator comprises driving three interconnected masses in a drive direction and driving the sense-mode oscillator comprises sensing motion of ~~at least~~ one of the three interconnected masses a in a sense direction, and

wherein driving the drive-mode oscillator comprises driving three interconnected masses in a drive direction and driving the sense-mode oscillator comprises mechanically amplifying sense direction oscillation amplitudes in ~~one of the three interconnected masses acting as the~~ a vibration absorber in the sense-mode oscillator.

27. (Currently amended) The method of claim 26, wherein the three interconnected masses ~~include~~ comprise a first mass, a second mass, and a third mass, ~~and~~ the method further comprising:

applying a sinusoidal Coriolis force to the second mass, and

matching the frequency of the sinusoidal Coriolis force with a resonant frequency of an isolated passive mass-spring system comprised of the third mass and its coupled

flexures, so that the third mass achieves maximum dynamic amplification in its oscillation.

28. (Currently amended) The method of claim 15,

wherein driving the drive-mode oscillator comprises driving a first, second and third mass in a drive direction, and driving the sense-mode oscillator comprises driving the second mass in a sense direction, and sensing motion of the third mass in the sense direction,

wherein the drive-mode oscillator and sense-mode oscillator each have a frequency response defined by a response curve,

wherein the frequency response of both the drive-mode oscillator and sense-mode oscillator have two resonant peaks and a flat region of the response curve between the peaks, operating both the drive-mode oscillator and sense-mode oscillator in the flat region of their response curves,[[,]]

wherein the second mass has a drive anti-resonance frequency, ω_{2x}, and the third mass has a sense anti-resonance frequency, ω_{3y}, and matching ~~the drive anti-resonance frequency,~~ ω_{2x}~~, of the second mass~~ and ~~sense anti-resonance frequency,~~ ω_{3y}~~, of the third mass~~, namely setting $\omega_{3y} = \omega_{2x}$, or equivalently $(k_{3y}/m_3)^{1/2} = (k_{2x}/(m_2 + m_3))^{1/2}$ and determining therefrom optimal system parameters, together with the optimized ratios $\mu_x = (m_2 + m_3)/m_1$, $\gamma_x = \omega_{2x}/\omega_{1x}$, $\mu_y = m_3/m_2$, and $\gamma_y = \omega_{3y} / \omega_{2y}$, wherein k_{3y} is ~~the~~ a spring constant of the flexures coupled to the third mass, ~~where~~ m_3 is ~~the~~ a magnitude of the third mass, k_{2x} is ~~the~~ a spring constant of the flexures coupled to the second mass, m_2 is ~~the~~ a magnitude of the second mass, ~~m_3 is the magnitude of the~~

~~third mass,~~ ω_{1x} is ~~the~~ a drive anti-resonance frequency of the first mass, and ω_{2y} is ~~the~~ a sense anti-resonance frequency of the second mass.